Arithmetic Mean and Geometric Mean

Arithmetic Mean measures the average value of the sum of elements in a series. It answers the question:

“If all the quantities had the same value, what would that value have to be in order to achieve the same total?”

Geometric Mean measure the average value of the product of elements in a series. It answers the question:

“If all the quantities had the same value, what would that value have to be in order to achieve the same product?”

Three examples to illustrate the difference and use-cases of AM and GM are:

1. Height of a population v/s growth rate of an investment
2. Perimeter v/s area of a rectangle
3. Optical camera v/s radar camera image

The question is:

‘Given the pair pf images, what is the mean image that produces the same total intensity and the same total noise as the two images combined?’